

# HD74HCT449

Quad. Bus Transceivers with Individual Direction Controls

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## Description

The HD74HCT449 has 4 bus transceivers. The device has direction control inputs with individual. And this control inputs select data transmissible direction.

When  $\overline{\text{GBA}}$  is high, A outputs are disable, and when  $\overline{\text{GAB}}$  is high, B outputs are disable.

## Features

- LSTTL Output Logic Level Compatibility as well as CMOS Output Compatibility
- High Speed Operation:  $t_{pd}$  (A to B) = 12.5 ns typ ( $C_L = 50$  pF)
- High Output Current: Fanout of 15 LSTTL Loads
- Wide Operating Voltage:  $V_{CC} = 4.5$  to 5.5 V
- Low Input Current: 1  $\mu\text{A}$  max
- Low Quiescent Supply Current:  $I_{CC}$  (static) = 4  $\mu\text{A}$  max ( $T_a = 25^\circ\text{C}$ )

## Function Table

### Enable

$\overline{\text{GBA}}$	$\overline{\text{GAB}}$	Direction DIR	Operation
H	H	X	Isolation
X	L	H	A data to B bus
L	X	L	B data to A bus
X	H	H	Isolation
H	X	L	Isolation

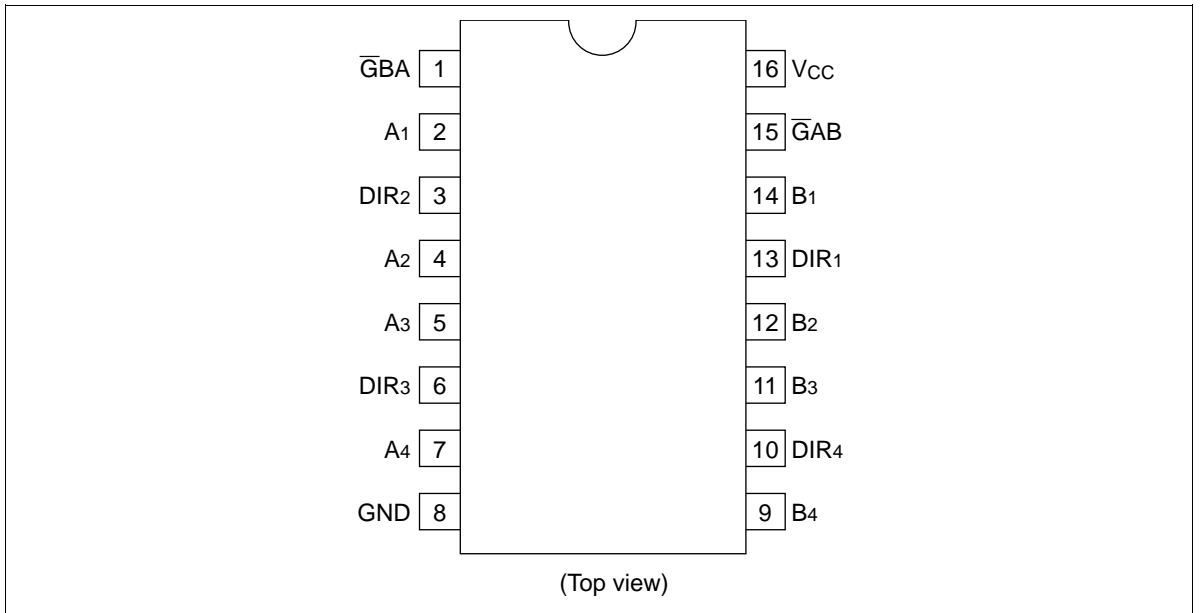
H : High Level

L : Low Level

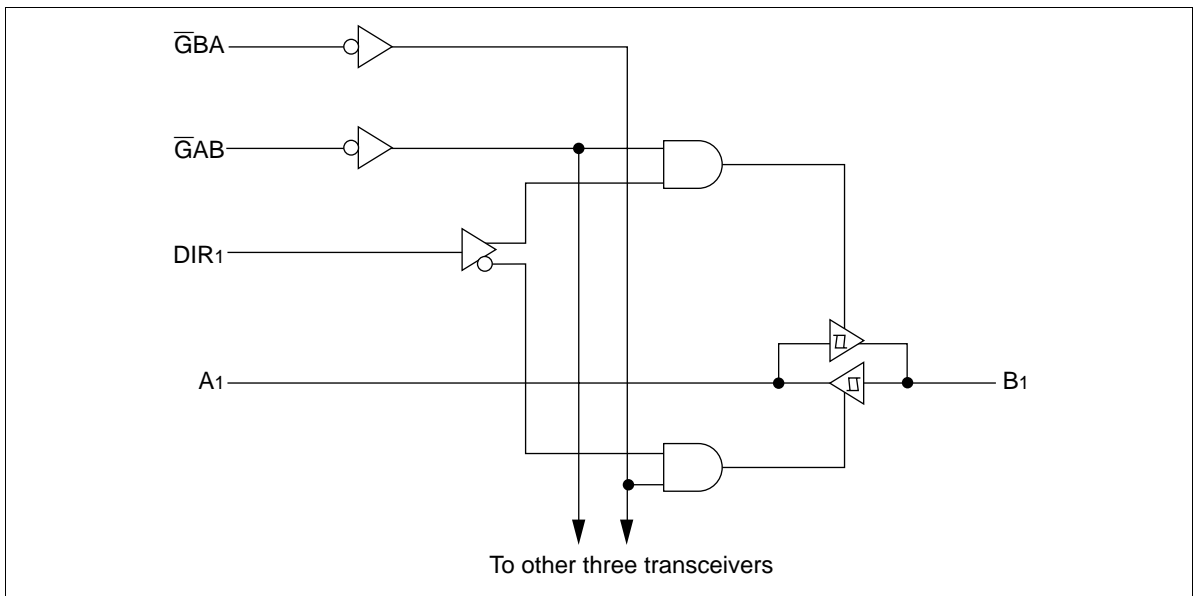
X : Irrelevant.

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## Pin Arrangement



## Logic Diagram



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**Absolute Maximum Ratings**

Item	Symbol	Rating	Unit
Supply voltage range	$V_{CC}$	-0.5 to +7.0	V
Input voltage	$V_{IN}$	-0.5 to $V_{CC} + 0.5$	V
Output voltage	$V_{OUT}$	-0.5 to $V_{CC} + 0.5$	V
DC current drain per pin	$I_{OUT}$	$\pm 35$	mA
DC current drain per $V_{CC}$ , GND	$I_{CC}$ , $I_{GND}$	$\pm 75$	mA
DC input diode current	$I_{IK}$	$\pm 20$	mA
DC output diode current	$I_{OK}$	$\pm 20$	mA
Power dissipation per package	$P_T$	500	mW
Storage temperature	Tstg	-65 to +150	°C

**DC Characteristics**

Item	Symbol	Ta = 25°C		Ta = -40 to +85°C		Unit	Test Conditions		
		Min	Typ	Max	Min		Max	$V_{CC}$ (V)	
Input voltage	$V_{IH}$	2.0	—	—	2.0	—	V	4.5 to 5.5	
	$V_{IL}$	—	—	0.8	—	0.8	V	4.5 to 5.5	
Output voltage	$V_{OH}$	4.4	—	—	4.4	—	V	4.5	$V_{in} = V_{IH}$ or $V_{IL}$ , $I_{OH} = -20 \mu A$
		4.18	—	—	4.13	—		4.5	$I_{OH} = -6 \text{ mA}$
	$V_{OL}$	—	—	0.1	—	0.1	V	4.5	$V_{in} = V_{IH}$ or $V_{IL}$ , $I_{OL} = 20 \mu A$
		—	—	0.26	—	0.33		4.5	$I_{OL} = 6 \text{ mA}$
Off-state output current	$I_{OZ}$	—	—	$\pm 0.5$	—	$\pm 5.0$	$\mu A$	5.5	$V_{in} = V_{IH}$ or $V_{IL}$ , $V_{out} = V_{CC}$ or GND
Input current	$I_{in}$	—	—	$\pm 0.1$	—	$\pm 1.0$	$\mu A$	5.5	$V_{in} = V_{CC}$ or GND
Quiescent supply current	$I_{CC}$	—	—	4.0	—	40	$\mu A$	5.5	$V_{in} = V_{CC}$ or GND, $I_{out} = 0 \mu A$

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AC Characteristics ( $C_L = 50$  pF, Input  $t_r = t_f = 6$  ns)

Item	Symbol	Ta = 25°C		Ta = -40 to +85°C		Unit	Test Conditions	
		Min	Typ	Max	Min		Max	V <sub>cc</sub> (V)
Propagation delay time	t <sub>PHL</sub>	—	14	25	—	31	ns	4.5
	t <sub>PLH</sub>	—	11	25	—	31		4.5
Output enable time	t <sub>ZL</sub>	—	18	30	—	39	ns	4.5
	t <sub>ZH</sub>	—	14	30	—	39		4.5
Output disable time	t <sub>LZ</sub>	—	17	30	—	39	ns	4.5
	t <sub>HZ</sub>	—	16	30	—	39		4.5
Output rise/fall time	t <sub>TLH</sub>	—	4	12	—	15	ns	4.5
	t <sub>THL</sub>	—	4	12	—	15		4.5
Input capacitance	C <sub>in</sub>	—	5	10	—	10	pF	—



Hitachi Code	DP-16
JEDEC	Conforms
EIAJ	Conforms
Weight (reference value)	1.07 g



\*Dimension including the plating thickness  
Base material dimension

Hitachi Code	FP-16DA
JEDEC	—
EIAJ	Conforms
Weight (reference value)	0.24 g



\*Dimension including the plating thickness  
Base material dimension

Hitachi Code	FP-16DN
JEDEC	Conforms
EIAJ	Conforms
Weight (reference value)	0.15 g

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## Hitachi, Ltd.

Semiconductor & Integrated Circuits.  
Nippon Bldg., 2-6-2, Ohte-machi, Chiyoda-ku, Tokyo 100-0004, Japan  
Tel: Tokyo (03) 3270-2111 Fax: (03) 3270-5109

URL      North America      : <http://semiconductor.hitachi.com/>  
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## For further information write to:

Hitachi Semiconductor  
(America) Inc.  
179 East Tasman Drive,  
San Jose, CA 95134  
Tel: <1> (408) 433-1990  
Fax: <1> (408) 433-0223

Hitachi Europe GmbH  
Electronic components Group  
Dornacher Straße 3  
D-85622 Feldkirchen, Munich  
Germany  
Tel: <49> (89) 9 9180-0  
Fax: <49> (89) 9 29 30 00

Hitachi Europe Ltd.  
Electronic Components Group.  
Whitebrook Park  
Lower Cookham Road  
Maidenhead  
Berkshire SL6 8YA, United Kingdom  
Tel: <44> (1628) 585000  
Fax: <44> (1628) 778322

Hitachi Asia Pte. Ltd.  
16 Collyer Quay #20-00  
Hitachi Tower  
Singapore 049318  
Tel: 535-2100  
Fax: 535-1533

Hitachi Asia Ltd.  
Taipei Branch Office  
3F, Hung Kuo Building, No.167,  
Tun-Hwa North Road, Taipei (105)  
Tel: <886> (2) 2718-3666  
Fax: <886> (2) 2718-8180

Hitachi Asia (Hong Kong) Ltd.  
Group III (Electronic Components)  
7/F., North Tower, World Finance Centre,  
Harbour City, Canton Road, Tsim Sha Tsui,  
Kowloon, Hong Kong  
Tel: <852> (2) 735 9218  
Fax: <852> (2) 730 0281  
Telex: 40815 HITEC HX

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